

SEASONAL VARIATION OF BLACK CARBON CONCENTRATION AT CHEONAN IN KOREA

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In this study, we continuously measured black carbon (BC) concentrations using a multiangle absorption photometer (MAAP). The monitoring of BC concentration at the city of Cheonan in Korea for 1 year revealed that BC concentration was reduced about half compared to the BC concentration measured 3 years ago, when the pattern of diurnal variation was very similar to those measured in urban areas. The monitoring site is not exactly rural nor urban in that the site is surrounded by fields, a stream and small mountains, but a brake-pad producing factory is located nearby.

The BC concentrations measured in this year show similar patterns between weekdays and weekends whereas those measured 3 years ago showed different patterns between weekdays and weekends. On weekdays, BC concentrations exhibited influence by traffic density since the daily pattern of traffic density was similar to that of BC concentration. On weekends, however, the diurnal patterns of BC concentration were influenced by several causes including pollutants from the adjacent factory and biomass burning.

In the spring season, the BC concentration was relatively high because of wind direction, biomass burning, traffic density, etc. The wind is blown from the west where a factory is located. The burning of haystacks is frequent in the spring season, increasing the BC concentration in April, and traffic density is increased due to the start of a new school semester. The BC concentration was reduced in the summer season due to rainfall and turbulent mixing by the wind. In autumn, however, the BC concentration increased again because of the start of a new school semester and the wind from the west. Traffic density was monitored and it partly affected the increase in BC concentration in the morning and evening.